AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions of claims in the application.

1. (Currently Amended): A process for producing single crystals of a gallium-containing nitride on a seed crystal substrate by a reaction between molten gallium retained in a container inside a crystal growth chamber and nitrogen gas, the process comprising:

preparing a eutectic alloy melt of gallium (Ga);

dipping the seed crystal substrate into the eutectic alloy melt, the seed crystal substrate having a catalytic metal having a mesh, stripe, or open polka-dot pattern deposited thereon, the seed crystal substrate including a crystal layer composed of a nitride including at least gallium (Ga), aluminum (Al), or indium (In); and

graphoepitaxially growing a single crystal [[phase]] film of the gallium-containing nitride on the surface of the seed crystal substrate by the reaction at the surface of the seed crystal substrate between gallium, which is a component of a eutectic alloy, and nitrogen dissolving into the eutectic alloy melt from a space zone containing a nitrogen supply source above a surface of the melt.

2. (Original): The process for producing the single crystals of the gallium-containing nitride according to claim 1, wherein the catalytic metal is platinum (Pt) and/or iridium (Ir).

3. (Original): The process for producing the single crystals of the gallium-containing nitride according to claim 1, wherein at least one metal selected from the group consisting of aluminum (Al), indium (In), ruthenium (Ru), rhodium (Rh), palladium (Pd), rhenium (Re), osmium (Os), bismuth (Bi), and gold (Au) forms the eutectic alloy melt with gallium (Ga).

4. (Original): The process for producing the single crystals of the gallium-containing

nitride according to claim 1, wherein the pressure in the space zone containing the nitrogen supply source is 0.1 to 0.15 MPa.

5. (Original): The process for producing the single crystals of the gallium-containing nitride according to claim 1, wherein the nitrogen supply source is nitrogen, NH4, or nitrogen-containing compound gas.

6. (Original): The process for producing the single crystals of the gallium-containing nitride according to claim 1, wherein the seed crystal substrate is sapphire single crystals.

7. (Cancelled)

8. (Original): The process for producing the single crystals of the gallium-containing nitride according to claim 1, wherein a single crystal thin film of a gallium-containing nitride represented by AlxGa1-x-yInyN ($0 < x < 1$, $0 < y < 1$, $0 < x + y < 1$) is grown from the eutectic alloy melt of gallium or by further dissolving aluminum (Al) and indium (In) in Ga.

9. (Original): The process for producing the single crystals of the gallium-containing nitride according to claim 1, wherein the seed crystal substrate is attached to a lower end portion of a rotating/vertical drive shaft and crystals are grown while rotating the seed crystal substrate.

10. (Original): The process for producing the single crystals of the gallium-containing nitride according to claim 1, wherein the crystal growth chamber is of a vertical type in which at least two temperature zones with different temperatures in the vertical direction of the chamber are

formed, and the seed crystal substrate is pulled up by the vertical drive shaft to position the seed crystal substrate in a low-temperature zone to allow crystals to grow.

11. (New) The process for producing the single crystals of the gallium-containing nitride according to claim 1, wherein a metal that forms an eutectic alloy with gallium (Ga) and a Ga supply source are placed in a reactor and heated and melted in the reactor at a temperature 100°C to 150°C higher than the eutectic temperature to prepare the eutectic alloy melt.

12. (New) The process for producing the single crystals of the gallium-containing nitride according to claim 1, wherein the thickness of the single crystal film of the gallium-containing nitride is 100 to 200 μm.